

ABSTRACT OF THE DISCLOSURE

A process is described for depositing a metal film on a substrate surface having a diffusion barrier layer deposited thereupon. In one embodiment, the process includes: providing a surface of the diffusion barrier layer that is substantially free of an elemental metal and forming the metal film on at least a portion of the surface via deposition by using a organometallic precursor. In certain embodiments, the surface of the diffusion barrier layer may be exposed to an adhesion promoting agent prior to or during at least a portion of the forming step. Suitable adhesion promoting agents include nitrogen, nitrogen-containing compounds, carbon-containing compounds, carbon and nitrogen containing compounds, silicon-containing compounds, silicon and carbon containing compounds, silicon, carbon, and nitrogen containing compounds, and mixtures thereof. The process of the present invention provides substrates having enhanced adhesion between the diffusion barrier layer and the metal film.